CLAIMS

What is claimed is:

1. A method for frequency conversion of a non-polarized optical light beam, comprising:

splitting a beam into two orthogonally polarized beams;

forming said polarized beams and rotating their polarizations; and

pumping an optical frequency converter with said polarized beams.

2. A method for frequency conversion of a non-polarized optical light beam, comprising jointly pumping one, type II phase matched frequency conversion process with two orthogonally polarized beams.

3. The method according to claim 1 or claim 2, further comprising placing an optical isolator in the beam path such as to prevent reflection-returned light from entering into the pump laser.

4. The method according to claim 1 or claim 2, wherein both beams are focused together into one spot within the frequency converter so as to generate one converted beam.

5. The method according to claim 1 or claim 2, wherein the frequency converter comprises a non-linear crystal placed within a cavity, and the common cavity is pumped by said polarized beams.

6. The method according to claim 1 or claim 2, further comprising combining the two generated polarized beams into one beam by means of a polarization beam combiner.

7. Apparatus for frequency conversion of a non-polarized optical light beam, comprising:

a beam splitter adapted to split a beam into two, orthogonally polarized beams;

beam forming optics adapted to form said polarized beams and rotate their polarizations; and an optical frequency converter pumped with said polarized beams.

8. Apparatus according to claim 7, wherein said beam splitter comprises a beam displacer polarizer.

9. Apparatus according to claim 7, wherein said beam forming optics comprises a half-lambda retarding wave plate, placed into one beam path such as to rotate its polarization by 90°.